26 June 1974

MEMORANDUM FOR: The Director of Central Intelligence

SUBJECT : Information Handling and Presentation: An Assessment of Computer-Related R&D

1. This memorandum assesses the effect of ongoing R&D on information handling and presentation. It is based on visits to computer manufacturers (IBM, Control Data Corporation, Digital Equipment Corporation) and to integrated electronic-circuit manufacturers (Texas Instruments and IBM). In brief:

a) The networking of large computers (e.g., as in COINS and IDHS) will become cheap and easy in the next 5 to 8 years.

b) Small computers will become so cheap, compact and capable that they

- will become an incidental part of the visual display unit (VDU) which analysts employ for data input, analysis and output, and

- will be tied or netted to large computers.

c) Research on the exploitation of these prospective capabilities for intelligence analysis is primitive, dispersed and low-level.

2. IBM dominates in both an intellectual and commercial way both computer engineering and manufacture, and research relevant to computer manufacture. In general, present R&D will

permit a continuation of the doubling of computer capability per unit cost every two years (2X/2yrs) as it has in the past. The basis for this continuation is still larger scale integration of electronic circuits than has been presently attained and exploitation of other physical principles. Another interpretation of this 2X/2yrs trend is that small ("mini"-) computers will become economically feasible for widespread use.

3. No institutional entity dominates in the application of current or prospective computer capabilities to problems of analysis in social studies*. In fact, unlimited growth of computer size and cost/effectiveness is taken to be an obvious good; utilization of improving capability and cost/effective is not questioned: no slackening of sales is noticed. Probably the use of computer-related technology in intelligence analysis being an intensive application [as opposed to the extensive (number-crunching) applications of big science, business and industry], cost and cost/effectiveness are not relevant. If so, improved technological capabilities will not perforce bring improved analytical capabilities.

4. The import of the foregoing might be as follows:

- Large computers, each dedicated to specific codeword compartments, will be employed, thus mitigating unauthorized access possibilities and implying obsolescence of COINS and IDHS planning.

- Mini-computer/visual display unit combinations will become so cheap ($1000-$2000) and so easy to use (see next item) that every analyst who wants one will have it.

---

* Politics, sociology, economics, demography, literature, government, etc.

- Still simpler ("ordinary English") command languages will be employed which subsume present computer languages; this by use of special-purpose computer-language translating circuits.

- Fruitful applications of computer technology to intelligence social studies will not occur unless embryonic efforts by interested government and university groups are focused and supported substantially (perhaps with the National Science Foundation as the mechanism) and for an indefinite but long time.

5. In sum, with respect to information handling and presentation, we will in 5 to 8 years be able to do and to afford anything we are clever enough to invent.

STA